

WHAT IS CLAIMED IS:

1. A method of identifying a type of an optical disc loaded in an optical disc device that enables selective loading of a CD (Compact Disc), a hybrid SACD (Super Audio CD) and a DVD (Digital Versatile Disc) among optical discs, wherein the type of the optical disc is identified by irradiating an optical disc of an unknown type with a laser beam through an objective lens from a beam incident surface side, receiving a return light from a signal surface of the unknown optical disc in a plurality of photodetection areas of a photodetector in the middle of raising or lowering the objective lens placed on standby at a lens midpoint between a lower lens bottom point and an upper lens top point based on a focus search driving signal during focus searching, and adding all photodetection amounts of the plurality of photodetection areas, the method comprising the steps of:

20 presetting and storing an all sum signal value AS-cdref for CD signal surface reference for identifying the CD and the hybrid SACD as a CD based on respective CD signal surfaces thereof;

25 acquiring a focus search driving voltage Q corresponding to a DVD signal surface to previously store the same when a reference DVD is used and a return light from the DVD signal surface thereof located at a position of about 0.6 mm from the beam incident surface thereof is received by the photodetector;

30 acquiring a focus search driving voltage R corresponding to a CD signal surface to previously store the same when a reference CD is used and a return light from the CD signal surface thereof located at a position of about 1.2 mm from the beam incident surface thereof is received by the photodetector;

acquiring an all sum signal value AS-max by the

photodetector on the signal surface of the unknown optical disc, and comparing the all sum signal value AS-max with the all sum signal value AS-cdref for the CD signal surface reference;

5 acquiring a focus search driving voltage Y corresponding to the signal surface of the unknown optical disc when the return light from the signal surface thereof is received by the photodetector, and comparing the focus search driving voltage Y with a voltage value acquired by a
10 predetermined relational expression between the focus search driving voltage Q and the focus search driving voltage R; and
identifying the unknown optical disc as a CD when the all sum signal value AS-max is larger than the all sum signal value AS-cdref for the CD signal surface reference, and the
15 focus search driving voltage Y is larger than the voltage value acquired by the predetermined relational expression.

2. A method according to claim 1,
wherein the unknown optical disc is identified as a CD
20 when $AS\text{-max} > AS\text{-cdref}$ and $Y > (Q+2R)/3$ are satisfied.

3. An optical disc device in which a CD (Compact Disc), a hybrid SACD (Super Audio CD) and a DVD (Digital Versatile Disc) among optical discs are selectively loaded, and a type
25 of an optical disc is identified by irradiating an optical disc of an unknown type with a laser beam through an objective lens from a beam incident surface side, receiving a return light from a signal surface of the unknown optical disc in a plurality of photodetection areas of a photodetector in the
30 middle of raising or lowering the objective lens placed on standby at a lens midpoint between a lower lens bottom point and an upper lens top point based on a focus search driving signal during focus searching, and adding all photodetection amounts of the plurality of photodetection areas, the device

comprising:

5 focus search driving signal generation means for receiving respective return lights from a DVD signal surface located at a position of about 0.6 mm from the beam incident surface by using a reference DVD, from a CD signal surface located at a position of about 1.2 mm from the beam incident surface by using a reference CD, and from the signal surface of the unknown optical disc by the photodetector, and acquiring focus search driving voltages Q, R and Y
10 corresponding to the respective signal surfaces;

photodetector signal processing means for acquiring an all sum signal value AS-max by the photodetector on the signal surface of the unknown optical disc;

15 storing means for prestoring an all sum signal value AS-cdref for CD signal surface reference preset for identifying the CD and the hybrid SACD as a CD based on respective CD signal surfaces thereof, the focus search driving voltage Q corresponding to the DVD signal surface of the reference DVD, and the focus search driving voltage R corresponding to the CD signal surface of the reference CD;
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25 arithmetic operation means for comparing the all sum signal value AS-max with the all sum signal value AS-cdref for the CD signal surface reference, and comparing the focus search driving voltage Y corresponding to the signal surface of the unknown optical disc with a voltage value acquired by a predetermined relational expression between the focus search driving voltage Q and the focus search driving voltage R; and

30 optical disc type identification means for identifying the unknown optical disc as a CD when the all sum signal value AS-max is larger than the all sum signal value AS-cdref for the CD signal surface reference, and the focus search driving voltage Y is larger than the voltage value acquired by the predetermined relational expression.

4. The optical disc device according to claim 3,
wherein the unknown optical disc is identified as a CD
when AS-max > AS-cdref and Y > (Q+2R)/3 are satisfied.